BIRDS *of the* BUFFALO CREEK REGION

W. E. CLYDE TODD

AUDUBON SOCIETY OF WESTERN PENNSYLVANIA

BIRDS *of the* BUFFALO CREEK REGION, ARMSTRONG AND BUTLER COUNTIES, PENNSYLVANIA

Including the Todd Sanctuary Area

W. E. CLYDE TODD

Edited, with an Introduction, by
MARY HEIMERDINGER CLENCH

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W. E. Clyde Todd. Photograph taken at Carnegie Museum by M. Graham Netting in 1962, when Mr. Todd was 87.

INTRODUCTION

Todd Sanctuary, a tract of land in Buffalo Township, Butler County, Pennsylvania, is owned by the Audubon Society of Western Pennsylvania and dedicated to the study and preservation of nature. The Sanctuary was established in 1942 when W. E. Clyde Todd, then Curator of Birds at Carnegie Museum in Pittsburgh, donated 75 acres to the Society with the hope that his gift would be kept in perpetuity as a wildlife sanctuary. In the years that followed, Mr. Todd and others assisted in acquiring additional land, and now the Sanctuary of 160 acres is a significant resource. It contains a variety of habitats—forest, open meadows, thickets, woodland streams, and a newly constructed pond—as well as facilities for visitors and students. One of the Sanctuary's most important assets, however, is Mr. Todd's record of the birds of that area, which he had studied when he was a boy. His record, in the form of a manuscript dated January 14, 1898, offers a rare opportunity to compare the bird life of his day with that of the present, and to study the changes that have taken place over a long period. Some of the faunal changes of the past 80 years are immediately apparent. Others will take considerable study to understand.

Mr. Todd, shortly before he died, gave his manuscript to the Society with approval for publication. On the occasion of the Sanctuary's 30th Anniversary it is appropriate to publish the manuscript, making it available to naturalists and all others interested in birds.

COVER Magnolia Warbler, *Dendroica magnolia*. From the painting by George Miksch Sutton. The painting, as well as the drawings of birds that appear on following pages, are among those prepared by Sutton for Todd's *Birds of Western Pennsylvania*. By permission of Carnegie Museum.

PHOTOS Numbers 3, 4, 9, and 10 by Paul G. Wiegman.

W. E. Clyde Todd (1874-1969) was one of the most remarkable men in the annals of ornithology. He was not only an eminent scientist. He also enjoyed one of the longest spans of research productivity in history. His first publication appeared in 1887 when he was 13, and his last in 1966, when he was 91: a career of 79 years. During these years, he published an impressive number of technical papers and expedition reports, and three major books, the last one in 1963. Mr. Todd had a broad knowledge of birds, but he specialized in the fauna of the New World: South America, the far north (Labrador), and Pennsylvania birds, his first love. He was best known in the Pittsburgh region as the author of *Birds of Western Pennsylvania* (University of Pittsburgh Press, 1940), as Curator of Birds at Carnegie Museum from 1899 to 1945, and as Curator Emeritus until his death in 1969.

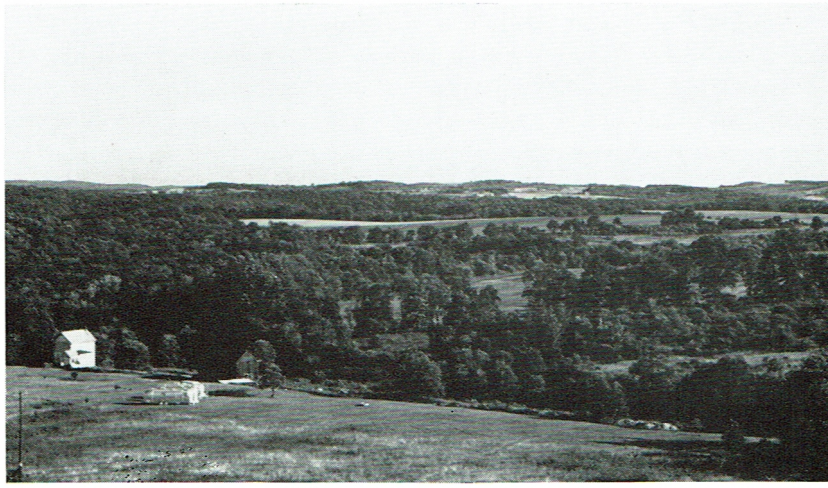
Mr. Todd's paternal grandfather, George Todd, owned a prosperous farm of some 150 acres on the Butler-Armstrong county line near Leasureville (then Leasuresville). This was the "headquarters" referred to in the Buffalo Creek manuscript. Although it is not yet known how much of the present Todd Sanctuary is situated on the original "Hazelwood Farm" tract, it is fairly certain that some of it is part of the old tract. Mr. Todd's maternal grandfather, James Hunter, had a farm in nearby Sarversville (later Sarverville, one mile SW of Sarver, then Sarver Station). As a boy Clyde Todd visited both his grandfathers' farms in summer, and sometimes during the Christmas holidays.

The most remarkable aspect of the Todd manuscript is that it was begun when the author was in his teens, studying the birds of the area. Clyde Todd had lived in Beaver, Pennsylvania, since the age of three, and his interest in birds began at the age of eleven. By the end of 1887, when he was thirteen and a freshman in high school, he had become so involved in bird study that it took almost all his free time. He had already published his first paper, *Beaver County, Pa., Notes* and had a life list of 63 species.

It is difficult for someone in these days of field guides, binoculars, and bird clubs to realize the problems faced by this boy in the 1880's who wanted to study birds. With no optical aids, all birds he observed had to be carefully stalked until he got close enough to see them well. And even if he managed to get a good view, there were no handy pocket guides with colored illustrations to help him identify what he had seen.

In Mr. Todd's manuscript autobiography of his first 27 years (deposited in Carnegie Museum and here quoted with permission of the Museum authorities) he relates his first frustrating experience with fall warblers (in 1888):

Hazelwood Farm, Grandfather Todd's farm near Leasureville. Photograph probably taken in late 1800's. The house, now remodeled, is still standing.



3 The Buffalo Creek region today. The rolling landscape is now more wooded than it was when Mr. Todd studied birds here.

4 Watson's Run at Todd Sanctuary.

"Passing through the woods with eyes and ears open, I hear a weak chirp, traced to a small bird skipping about in the tree-tops. Suddenly I find that the trees are literally alive with the tiny creatures, foraging for their insect food. It is indeed a busy throng that flits about so actively overhead, never pausing in their work, save for a short flight from one tree to the next. Sometimes they descend to the shrubbery and undergrowth, where they can be observed to better advantage, but their numbers are so great, their variety is so endless, and their activity is so unceasing, that it is well-nigh bewildering withal. One species that greatly predominated in abundance on this occasion I later identified as the Black-poll Warbler, but most of the others I could not place. It was exasperating indeed to find myself utterly unable to identify so many of the species I saw . . ."

Without binoculars and field guides, the only practical way to study birds seriously in those days was to make use of a shotgun. If a bird could not be seen well enough with the naked eye, or if it was too difficult to identify otherwise, it was standard practice to shoot it, then carry it home and look it up in a book. In Todd's youth the only books available described birds in such a way that many could be identified satisfactorily only when they could be held in the hand for examination. Hence it was sometimes absolutely necessary to shoot a bird in order to know what it was. Mr. Todd actually shot comparatively few in his early years, and later he reflected:

"I could perceive no decrease in bird life that could possibly be correlated with my modest operations, and already I had made several discoveries of scientific importance . . . I never felt that it was morally wrong."

Even at a very tender age, Mr. Todd had begun his life's work with great determination. He tells the story thus:

"I became convinced that without a gun of my own I could not hope to make further substantial progress in my study of birds . . . At the end of the year [1888] I had added only thirty-three species to my list—a pitifully small showing, as I considered, compared with what might have been. At any cost, a gun I must have. But I had no money, and my parents would not hear of it. Undoubtedly, they thought me too young to be entrusted with such a potentially dangerous weapon; moreover, they could see nothing whatever in this 'bird business' of mine, and they were set to discourage it wherever possible."

The boy of 14 was resolute, however, so he exchanged his small egg collection plus $5.00 for a single-barrel shotgun. He had to borrow the $5.00 from a school friend, whom he later paid back by picking raspberries for two cents a quart.

"I tried to keep the matter secret from my parents; it was indeed the first time I had dared to run counter to their wishes on any major proposition. But it was not long until they learned about it, and seeing how determined I was they let me have my way, and I brought the gun home to keep. But my mother would never touch it."

Once he had his gun, Mr. Todd used it as a scientific tool only. He collected what he felt was necessary, but he was always aware of the value of bird life and did as little shooting as possible. In his autobiography he shows his general attitude by the following:

"One wonders how often birds and animals wounded by gunners escape at the time only to die a lingering death. Once I came upon a red fox lying dead beside a stream; it had been mortally wounded by a shotgun charge but had been able to reach water before it dropped. This killing is a ghastly business."

He extended this attitude to all types of depredation of wildlife, including egg collecting. In the fall of 1887, at the age of 13, he

". . . discovered that egg-collecting was being carried on all over the country; I was just one of many hundreds thus engaged. Some of these were serious students, with a real scientific interest in the work; others were collecting birds' eggs as a hobby, or as a mere fad—just as they might have collected tobacco tin-tags (as many boys were doing then), or postage stamps, or antiques, or jade, or Chinese porcelain, or any one of a dozen other things. Their basic idea was to see who could get the greatest variety, the rarest kinds, and the largest collection. The possible damage to bird life in attaining these ends was never considered. There were still others, I regret to say, with whom egg-collecting was a purely commercial enterprise; they were out for what they could get. This is the lowest motive of all, and those governed thereby could easily do the most serious damage. One could scarcely form a collection without acquiring in the process a fund of information on the nesting habits of our birds—all of which would be a contribution to our knowledge of their economy, if duly recorded and made available. Now, the collecting of eggs is not an end in and of itself, but is justifiable insofar as it illustrates and is a part of the biology of the bird. However, no useful scientific service is subserved by the amassing of vast series of eggs of the same species, especially when they happen to be all alike, as in the case of such birds as lay pure white or unmarked eggs. In most cases a limited number of sets, selected to represent variations in coloration, size, and number laid, should suffice for each species. Except possibly for exchange purposes, there is no excuse, in my opinion, for amateur collectors taking more than a few sets of any one kind."

After he had begun serious bird study, and had become fairly familiar with the birds near his home in Beaver, Clyde Todd asked if he might spend a month at his grandfather's farm near Leasureville. "My parents assented, but what they did not know was that I was planning to make my visit an ornithological excursion." So on May 15, 1889, Todd took his first rail trip alone (at the age of 14) on his first ornithological "expedition." The month he was at Hazelwood Farm it rained every day (the Johnstown Flood occurred during this period), but the boy was determined to seek out as many birds as possible, and he had remarkable success. Much of the material in the Buffalo Creek manuscript comes from this short period, and includes the discovery of a breeding Magnolia Warbler—a remarkable story, told in his autobiography:

". . . To this list of northern warblers [Chestnut-sided, Black-throated Green, and Canada], summer residents here, but known in Beaver County only as spring and fall transients, it fell to my lot to add still a fourth species as a most surprising and unexpected discovery. On May 30 I found an empty nest in a bushy young hemlock hard by Watson's Run, which flows through a cool and shady ravine leading to Buffalo Creek. It looked like a last year's nest, but a careful examination satisfied me that this was an illusion resulting from the materials used in its composition, which were in the main small, dead, blackish, hemlock twigs, with fine weed-stems and horsehair for lining. On June 1 the nest contained three eggs, although I saw no bird. But on June 3 the mystery was solved. Arrived at the spot, I quietly approached the nest, and saw the female parent sitting thereon. Beyond a doubt, she was a Black-and-yellow or Magnolia Warbler. Flushing her made me even more sure. Here was a significant and valuable find indeed. It was not that this warbler was rare or its eggs unknown, but that its nesting so far south in a non-mountainous region was by way of being a new and important discovery. Realizing the necessity for absolute proof in a case such as this, concerning which I suspected that Dr. C. Hart Merriam, Chief of the Division of Economic Ornithology in Washington, would be properly skeptical, I essayed to shoot the parent bird for fuller identification, but she evaded me until nightfall, when I was forced to leave. A fourth egg had now been added. Returning early the next morning, June 4, I again flushed the bird from her nest, and shot her at once. My identification was quite correct, but I was not satisfied; I wanted the bird preserved as a specimen to verify the new discovery, which was my outstanding ornithological achievement up to that time. Not feeling capable of undertaking the preservation myself, I enclosed the bird in a small tin box, and addressed it to my friend [Hurlburt] Wickham at Beaver, together with a letter explaining the importance and urgency of the case, and asking him to have his grandmother, Mrs. Hurlburt, skin the bird out for me (she had some knowledge of taxidermy). But the Fates willed it otherwise.

"It so happened that my uncle was going to the mill at Boggsville. I went with him, intending to mail my packet and the letter at the village post-office on the way back. He was driving a team of horses one of which was young and skittish. Scarcely had we topped the rise looking down the long grade to the creek bottom when this animal, incited by the antics of some frisky horses in the pasture adjacent, took the bit in his teeth and started to run, carrying his team-mate along with him. Now, my uncle was a strong man, but he could not hold them, once they got started on the down-grade. Supposing that I was already out, he leaped overside, and was thrown to the ground. It all happened so quickly that I never could explain it, although I presume that when my uncle jumped out the wagon-seat followed him. At any rate, I now found myself clinging to the side of the wagon-bed, with my left foot on the rear axle, the other hanging free. I dared not let go, to be crushed under the wheel (which was grinding against my side), nor could I get back into the wagon-bed. To phrase it as mildly as possible, mine was a truly precarious position. About two-thirds the way down the hill the horses in their mad rush banged the rear hub on my side against a tree, with a tremendous jolt. The opposite rear wheel thereupon collapsed. Suddenly I found myself lying on my back in the wagon-bed, one corner of which was dragging on the ground, and I had wit enough left to wriggle out backward into the mud. It was just as well that I did, for some yards farther on one of the floorboards in the wagon-bed gave way, and through this opening, a few seconds later, was thrust a heavy log-weight from a short bridge on the road. The wagon-bed was torn away and completely demolished.

In fact, there was not enough left of the whole outfit to be worth salvaging. The horses presently ran themselves out; they alone were uninjured. I picked myself up in time to see my uncle come tearing down the hill, carrying (of all things)—an umbrella! When he found I had not jumped out ahead of him he feared I would be killed. That I was not was due, I shall always believe, to a merciful Providence that has been guarding my way. But I was badly shaken up, had cuts in several places (the scars remain to this day), and suddenly I was very weak, so that after the horses were recovered I had to ride back on one of them. We made a solemn and sorry spectacle returning to the farm.

"The box containing the body of the Magnolia Warbler, which I was carrying in my pocket, was badly crushed against the wheel in the runaway, and was not mailed until the next day. The bird was spoiled, so Hurlburt Wickham wrote me, by the time it reached him, and could not be skinned. Had he only thought to save the wings and tail they would have sufficed to identify it. [Todd also collected the four eggs, however, and they are still preserved in Carnegie Museum.] Sure enough, when I reported the find to Dr. Merriam he wrote me a letter of inquiry, to which I was obliged to reply by recounting the substance of my unfortunate experience as detailed above. He appeared to be satisfied, since he wrote me again stating that some northern birds occasionally breed south of their recognized range when the local conditions favor, as they did in this case . . . Thus it came about that my 1889 excursion, brief as it was, served to center my attention on a phase of bird study which has come to occupy first place in all my subsequent work: the geographical distribution of bird life."

EDITORIAL NOTES: In editing the Buffalo Creek manuscript, the only changes made in the original wording have been to modernize scientific names and to add common names (e.g. "Parula Warbler, *Parula americana*" has been updated from "Blue Yellow-backed Warbler, *Compsothlypis americana*"). The original order of species (following the American Ornithologists' Union Checklist, 2nd edition, 1895) generally has been retained. A few explanatory notes in brackets marked [. . . Ed.] have been added to help non-local readers.

Mr. Todd completed the original manuscript in January, 1898. Both his grandfathers had died in 1897, and as he may have thought he would not be paying many more visits to the area he finished the paper. The next year he returned to western Pennsylvania from Washington, D.C., where he had been associated with the (then) U. S. Biological Survey, to assume his new position at Carnegie Museum. Between 1899 and 1907 Mr. Todd made a few more trips to the Buffalo Creek region and appended several notes to the manuscript. These have been included, where appropriate, in brackets marked [. . . WECT].

The reader will notice that almost all the birds listed are either winter or summer residents. This is because most of Mr. Todd's trips to the farms were during holidays. He was also particularly interested in the birds that lived in the area rather than those that just passed through on migration.

While in Washington Mr. Todd had worked for Dr. C. Hart Merriam and assisted him in formulating the new concept of life zones, hence the many comments and comparisons between Beaver and Buffalo Creek and their respective Carolinian, Alleghanian, and Canadian zone affinities. This is one of the earliest studies of zonal composition of a regional avifauna.

Mr. Todd was a man of strong opinions. One of these convictions was that introduced birds did not "belong" in a region, so he completely ignored them. Thus the manuscript makes no mention of House Sparrows, even though they almost certainly were abundant on the farm. The Starling had not yet crossed the Appalachians (it arrived in western Pennsylvania between 1916 and 1920), and the Ring-necked Pheasant, although originally introduced into Pennsylvania in 1892, was not successful until about 1915. No information is available on the status of the Rock Dove.

After Mr. Todd completed his study of the Buffalo Creek region, no systematic studies were made in or around Todd Sanctuary until the late 1960's. In 1969 Joe Grom published a *Tentative List of the Breeding Birds* of the Sanctuary [Audubon Society of Western Pennsylvania, Bulletin 34 (3): 17-26]. Appropriate parts of this report have been interdigitated within the Todd manuscript in brackets marked [. . . JG] where those parts are Grom's own observations, and [. . . per JG] where they were not personally verified by him. These modern records give some indication of faunal changes over the past 80 years, but no detailed comparisons have been possible. The work at Todd Sanctuary is not yet complete enough to enable such comparisons, and the Todd manuscript covers a larger area and span of seasons than the Grom report (which was basically only for the summer of 1969). It is hoped, however, that the publication of this historical manuscript will stimulate additional study of the region so that detailed comparisons can be made in the future.

MARY HEIMERDINGER CLENCH

Carnegie Museum
February, 1972.

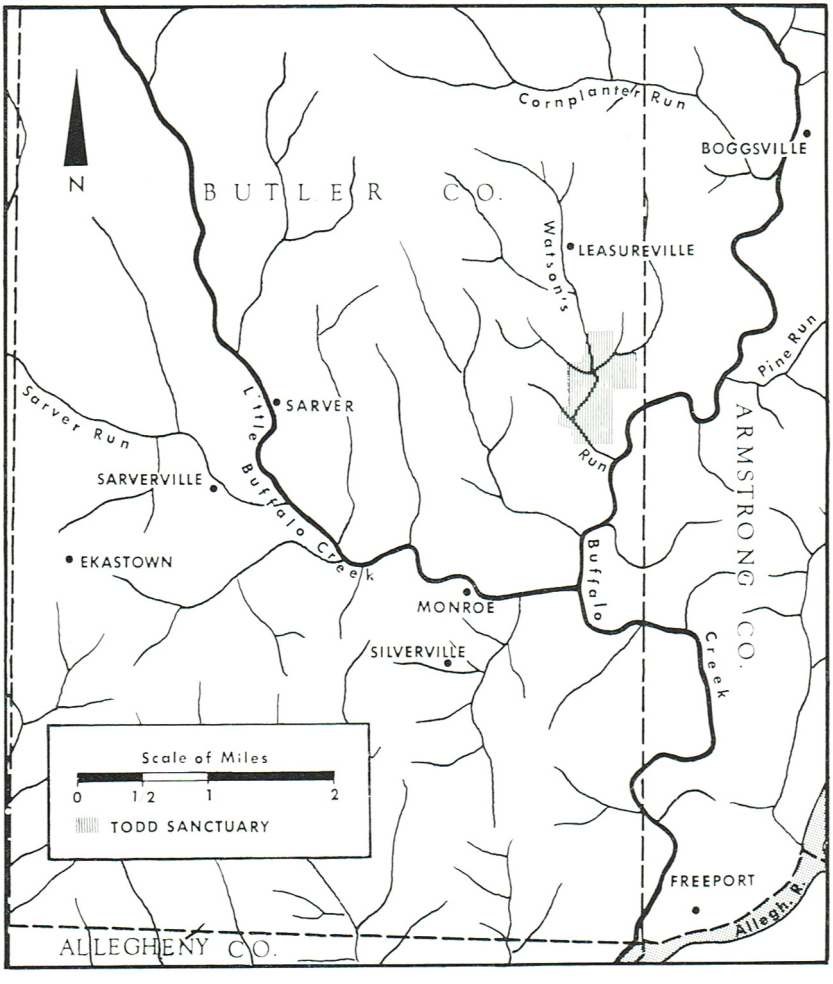
BIRDS OF THE BUFFALO CREEK REGION OF ARMSTRONG AND BUTLER COUNTIES, PENNSYLVANIA

FROM A MANUSCRIPT DATED JANUARY 14, 1898

About twenty-eight miles above Pittsburgh, at Freeport, Armstrong County, Buffalo Creek enters the Allegheny River from the north, and is here a muddy, sluggish stream. Rising in the northwestern part of Armstrong County, and flowing in a generally southerly direction, with many tortuous windings, it drains a large area in western Armstrong and eastern Butler Counties, in fact, all that region lying between the headwaters of Connoquenessing Creek on the west and the immediate tributaries of the Allegheny River on the east. The greater part of its course lies through Armstrong County, but about four miles north of Freeport it is deflected into Butler County, presently receiving the waters of Little Buffalo Creek, and a mile or so below this point again entering Armstrong County, through which it continues to its mouth. Its most important tributary is Little Buffalo Creek, which enters not far below the way-station of Monroe [approximately ½ mile NE of Silverville . . . Ed.] on the Butler Branch of the Pennsylvania Railroad. Another stream important in the present connection is Watson's Run, which empties into the creek from the north about one and three-fourths miles south of the post-office of Leasuresville [approximately 2 miles WSW of Boggsville . . . Ed.], Butler County. A mile farther up Pine Run enters from the east, its entire course being nearly parallel to Buffalo Creek, and at Boggsville post-office Cornplanter Run comes in from the west.

The bottom of Buffalo Creek was traversed from the mouth of Little Buffalo to a point a mile above Boggsville, and the adjoining hillslopes explored to some extent. Little Buffalo Creek was worked only near its mouth, but a few observations were made farther up, at Sarver Station; along Sarver's Run, one mile west thereof; and near Ekastown post-office, two and one-half miles west [or approximately 2¾ miles SSE of Saxonburg . . . Ed.]. For most of the time, however, my headquarters were located about a mile and a half southeast of Leasuresville, and excursions were made to Watson's, Pine, and Cornplanter Runs, as well as to Buffalo Creek itself, while the intervening upland country was fairly well covered.

Buffalo Creek is rather a bold and rapid stream, with occasional intervals of still water and deep pools. The altitude of the railroad at Monroe is 842 feet, and the creek bed at that point is therefore about 820 feet. Thus the bottomlands of the creek and its various tributaries in this section are not



5 Buffalo Creek region, Butler County, Pennsylvania. Map by Joanne E. Garvin.

over 850 feet in altitude, while the uplands are 200 or 300 feet higher, occasionally rising to knobs that command a view of the country for several miles. From such posts the general aspect of the region appears rather less uneven and more rolling than in Beaver County, and over considerable areas even quite level. The valley of Buffalo Creek is a mere gorge, its bottom usually quite narrow, and the neighboring slopes steep and rugged, sometimes rising as precipitous sandstone cliffs, rendering the scenery along the creek among the most wild and picturesque in western Pennsylvania. The lower portions of the courses of its tributary streams are scarcely less striking, consisting of narrow ravines, scarcely ever a hundred feet wide, and hemmed in by steep slopes whose summits pass abruptly into the level upland country.

Much of the region has been cleared and brought under cultivation, but considerable areas of forest land still remain, even on the uplands and the higher summits. It is along the streams, however, that the woodland mostly occurs. The side-hills of Buffalo Creek are heavily timbered, and the valleys or ravines of its tributary brooks support a forest-growth that for wildness and luxuriance is unexcelled in this part of the State. The character of the forest differs materially from that in Beaver County, coniferous trees of three species—white pine (*Pinus strobus*), pitch pine (*Pinus rigida*), and hemlock (*Tsuga canadensis*)—which are rather local and not common in the latter locality, here predominating. But it is to be observed that this preponderance of conifers exists only in the vicinity of streams, the higher upland forests differing little, if at all, from those of Beaver County. Again, the effect of slope-exposure is seen in the density and abundance of these relatively boreal trees on the slopes of Buffalo Creek which face the north, while slopes having a southern exposure are more apt to be covered with various species of deciduous trees. There is also a conspicuous massing of the coniferous trees over certain areas, and, though dense, they are comparatively free from undergrowth. The deciduous woodland, on the other hand, is choked up by shrubbery, bushes, and small plants. So far at least as this region is concerned, the latter may be regarded as characteristic of the Carolinian Zone, the former of the Alleghanian.

As a whole the locality is rich in bird life, more so, perhaps, than is Beaver County, and here the birds are rarely if ever molested. Naturally the greatest variety is found in the woods, especially of the bottomlands, in whose cool and shady recesses the Ovenbird and Red-eyed Vireo delight, while overhead the Great Crested Flycatcher utters its uncouth notes, and the Scarlet Tanager flashes in and out of the hemlocks. From time to time the rich song of the Rose-breasted Grosbeak may be heard, and the ventriloquistic notes of the Veery salute one from its bushy covert, mingled with the occasional

notes of the Acadian Flycatcher. Warblers, too, are numerous; perhaps the most common is the Canada, whose sprightly song is a constant attribute of the denser growth, while the monotonous lisp of the Black-and-white Warbler and the trill of the Worm-eating are heard at frequent intervals. In the tall hemlocks the Parula and Black-throated Green Warblers hold high carnival, and along the plashing streams the song of the Louisiana Waterthrush rings out full and clear.

Ascending to the pastures of the upland, the Killdeer becomes conspicuous, and in the meadows the melody of the Bobolink mingles with the insect-like trill of the Grasshopper Sparrow, the clear whistle of the Bobwhite, and the loud calls of the Eastern Meadowlark and Red-winged Blackbird, while at dusk and early dawn the stillness is broken by the weird cry of the Whip-poor-will as it sallies forth from its woodland covert. Crows and Red-headed Woodpeckers are also common, the latter often entering the orchards, where such birds as the Eastern Kingbird, Common Grackle, Baltimore Oriole, Cedar Waxwing, Warbling Vireo, Yellow Warbler, and Robin are regularly found, along with an occasional Least Flycatcher and Orchard Oriole. Barn and Cliff Swallows are numerous about farm buildings, while the Rough-winged Swallow, Spotted Sandpiper, and Belted Kingfisher are found at intervals along Buffalo Creek. Wherever tracts of hazel brush occur the Chestnut-sided Warbler, Brown Thrasher, Catbird, and, more rarely, the Yellow-breasted Chat, is pretty certain to be found.

Twenty-one species of the whole number that are known or believed to pass the breeding season are of significance in studying the faunal relationships of this region. They may be segregated into three groups, the first comprising ten species whose distribution to the northward is limited by the Carolinian Fauna, as follows:

Acadian Flycatcher	Louisiana Waterthrush
Cardinal	Yellow-breasted Chat
Rough-winged Swallow	Carolina Wren
Worm-eating Warbler	Tufted Titmouse
Cerulean Warbler	Blue-gray Gnatcatcher

The second group consists of eight species whose normal summer distribution to the southward lies within the Alleghanian Fauna:

Least Flycatcher	Chestnut-sided Warbler
Bobolink	Black-throated Green Warbler
Rose-breasted Grosbeak	Black-capped Chickadee
Golden-winged Warbler	Veery

There remain three species which in their southward breeding range are mainly confined to the Canadian Fauna:

Magnolia Warbler
Blackburnian Warbler
Canada Warbler

From the above lists it is evident that the region as a whole cannot properly be assigned to any one of these three faunae. It becomes necessary, therefore, to consider in detail the local habitat and relative abundance of each of the species composing such a strange and incongruous assemblage. At the outset it may be well to compare the characteristic summer birds of this region with those of Beaver, Beaver County, about thirty miles directly to the westward. Upon such a comparison a striking difference at once becomes apparent, consisting in the entire absence or rarity in the Buffalo Creek region of a number of more or less typical Carolinian species which are characteristic birds at Beaver, and in the infusion instead of certain Alleghanian and Canadian forms.

Since both localities lie in the same latitude, it is evident that this consideration exerts no influence in determining their relative faunal positions. Other causes must be sought.

In considering the Carolinian species of the first list, we find that three of them have been noted only once: Cerulean Warbler, Carolina Wren, and Blue-gray Gnatcatcher, and one of these, Carolina Wren, was not actually recorded in the breeding season. Three of the remaining species, Cardinal, Yellow-breasted Chat, and Tufted Titmouse, are not very common—far less so than at Beaver. This leaves but four species, Acadian Flycatcher, Rough-winged Swallow, Worm-eating Warbler, and Louisiana Waterthrush, that are at all common and generally distributed.

The Acadian Flycatcher and the Louisiana Waterthrush are from the nature of their habits confined entirely to the shady retreats in wooded ravines, while the Rough-winged Swallow is found only along Buffalo Creek, about open, sunny places. The other Carolinian species seem to prefer woodlands or thickets of the kind previously characterized as Carolinian, and which, as compared with the Alleghanian forest-growth, are by nature and situation somewhat warmer. Viewed in this light, the occurrence of so many Carolinian forms in this region is not so surprising.

It would naturally be expected that all the birds of the Alleghanian Fauna found at Beaver would occur here also, which is indeed the case, the species being Least Flycatcher, Bobolink, Rose-breasted Grosbeak, Golden-winged Warbler, and Black-capped Chickadee. Of the remainder, the Black-throated Green Warbler and the Veery love the deep coniferous woods, which fact

sufficiently accounts for their occurrence in such numbers, while the Chestnut-sided Warbler is a denizen of the tracts of hazel brush found on the upland.

The three birds rated as belonging to the Canadian Fauna are all confined to the deep, cool, coniferous woods. But they are not the most typical Canadian species, and only one is common.

From the above analysis the following conclusions may be summarized and formulated:

(1) The Carolinian element is not so important (as regards abundance of individuals) as is first apparent.

(2) With a few exceptions the Carolinian element occupies the "Carolinian" woodland.

(3) The portion of the Alleghanian element over and above that at Beaver is practically confined to the "Alleghanian" woodland.

(4) The Canadian species are strictly confined to the coolest parts of the "Alleghanian" woodland.

And it may be further stated:

(5) The reduction in austral and increase in boreal types (as compared with Beaver) is probably due to the proximity of the mountains.

(6) The local distribution of the avifauna corresponds with the distribution of the forest-growth, and both depend upon slope-exposure and topographic features.

Respecting the two latter propositions, it may be added that the general altitude of the region, being but a little more than one hundred feet above that of Beaver County, has little if any effect in causing such an increase in relatively northern forms—a condition more evidently due to increased nearness to the mountain country. Certain it is that here the life-zones tend to conform to the trend of the Appalachian Mountain Chain as it sweeps the boreal zones to the southward along its crests, and latitude becomes a secondary consideration.

This section also furnishes a good illustration of how local conditions may influence the distribution of species contrary to and more strongly than altitude. As southern species extend farther north in river valleys, and northern species, on the other hand, are found farther south along mountain ranges, we might expect to find the Carolinian birds of this region in the stream bottoms, and the Alleghanian and Canadian forms on the uplands; but not so. It is in the narrow, heavily-wooded valleys or ravines of Buffalo Creek and its tributary brooks that the relatively northern birds are most abundant and characteristic, finding in their deep recesses a sufficiently cool and congenial temperature for their summer home. Similar conditions existing on hillslopes having a north exposure also attract these northern birds.

Without doubt the Buffalo Creek Region lies within that zone of debatable ground where the Carolinian and Alleghanian Faunas meet and struggle for the mastery—a contest where even a slight advantage turns the scale one way or the other. Or (dropping the figure) here, then, is an instance, one of the most interesting in western Pennsylvania, of the coming together of two life-zones, their edges overlapping and interlocking as influenced by the conditions of forest-growth, slope-exposure, and locally varying temperature.

The present paper is based upon observations made during a number of visits to this locality, the longest of which covered a month in the height of the nesting season, from May 15 to June 14, 1889. Save in 1896, when my visit was made in the latter part of May, several days in June each year from 1892 to 1897 inclusive were devoted to its exploration. It has also been frequently visited in December and January, but not in fall or early spring. As a result the following list includes very few of the transient species that undoubtedly occur in their appropriate seasons. On the other hand the birds that are known or assumed to breed are probably fairly well represented, comprising as they do eighty-one out of a total of ninety-two species recorded from this region.

[Systematic List]

[Those species marked with an asterisk (*) were recorded as nesting in or immediately adjacent to Todd Sanctuary in 1969; those with a dagger (†) were reported to nest at the Sanctuary in recent years, or within two miles of the Sanctuary in 1969. Ed.]

*[GREEN HERON, *Butorides virescens*.—One noted along Buffalo Creek, below Boggsville, July 1, 1899 . . . a summer resident . . . WECT].

*AMERICAN WOODCOCK, *Philohela minor*.—Several were flushed on May 30, 1889, on the hilltop on the south side of Buffalo Creek, where they were evidently at home in a damp tract of second-growth and thicket, in whose midst was a small open swampy place. I was told by one of the local hunters that they were not uncommon summer residents, and that several nests had been found. [A pair frequented a marshy spot at the edge of the woods on the farm during the spring of 1899 . . . WECT].

SPOTTED SANDPIPER, *Actitis macularia*.—Numerous along Buffalo Creek; somewhat less so about the small upland streams in the open. [Heard in upland field March 5, 1903 . . . WECT].

†KILLDEER, *Charadrius vociferus*.—Unlike the last species, the Killdeer is almost unknown along Buffalo Creek, but it is an abundant and characteristic bird of the upland fields, which it frequents almost exclusively, its plain-

tive cries being heard constantly through the day, and often at dusk and even far into the night. A nest with four eggs was found May 29, 1889, placed on the ground in an open field. In July, 1886, it was usual to find parties of from ten to twenty birds in pasture fields which had been laid waste by the white grub (*Lachnosterna*) [June bug . . . Ed.], feeding among the sods upturned by the hogs.

BOBWHITE, *Colinus virginianus.*—This species is common—certainly as much so as at Beaver, and as usual inhabiting meadows and bushy fields.

*RUFFED GROUSE, *Bonasa umbellus.*—Quite common and generally distributed throughout the woodland area. A female with a brood of young barely able to fly was met with in June, 1889, and another brood June 28, 1897.

*[BROAD-WINGED HAWK, *Buteo platypterus.*—Bred successfully on Todd Sanctuary, 1969 . . . JG].

*RED-TAILED HAWK, *Buteo jamaicensis.*—This species may, I think, safely be recorded as resident on the strength of a single specimen seen December 28, 1891, about a mile south of Leasuresville.

†[SHARP-SHINNED HAWK, *Accipiter striatus.*—per JG].

†[COOPER'S HAWK, *Accipiter cooperii.*—per JG].

[OSPREY, *Pandion haliaetus.*—One observed along Buffalo Creek April 24, 1899; shy . . . status uncertain . . . WECT].

†[SPARROW HAWK, *Falco sparverius.*—One seen flying over, September 4, 1899, about one-half mile east of Leasuresville. No doubt a resident species . . . WECT].

*MOURNING DOVE, *Zenaidura macroura.*—Of frequent and regular occurrence in the open country, but not so numerous as I have elsewhere found it.

*[SCREECH OWL, *Otus asio.*—Recorded and presumed breeding at or near Todd Sanctuary, 1969 . . . JG].

GREAT HORNED OWL, *Bubo virginianus.*—For many years a pair has been known to inhabit the bluff along Buffalo Creek known as the "High Rocks," where I have heard them hooting in the evening. One of the local hunters pointed out their nesting-place in a cavity in the face of the cliff, from which he had taken two young birds in the spring of 1889. I have seen the species along Watson's Run also (June 20, 1892). [At "High Rocks," February 22, 1902, looked for signs of Horned Owls. Found some fresh rabbits' fur, and feathers of a Screech Owl and Cardinal. Heard one of the Owls calling softly from a point somewhere on the cliff, though we could not locate it, and then, when we had gone around and gained the top, we heard either that or another Owl calling from the other side of the creek in the dense woods.—

6 Screech Owl

February 23, 1903, one heard hooting in late afternoon in high woods opposite mouth of Watson's Run.—March 5, 1903, nest with two eggs found at "High Rocks" . . . WECT].

*YELLOW-BILLED CUCKOO, *Coccyzus americanus*.—Rather common about the edges of the forest, and in tracts of bushes and shrubbery.

*BLACK-BILLED CUCKOO, *Coccyzus erythropthalmus*.—A specimen was shot June 28, 1897, in some shrubbery on the summit of the divide between Watson's Run on the west and Buffalo Creek on the east, constituting the only positive record of the species for this locality, though there is no reason why it should not occur as commonly as the last.

†BELTED KINGFISHER, *Megaceryle alcyon*.—This species is regularly found along Buffalo Creek, several pairs having been noted over that portion of its course which has been traversed.

*HAIRY WOODPECKER, *Dendrocopos villosus*.—Not uncommon; found in heavy timber.

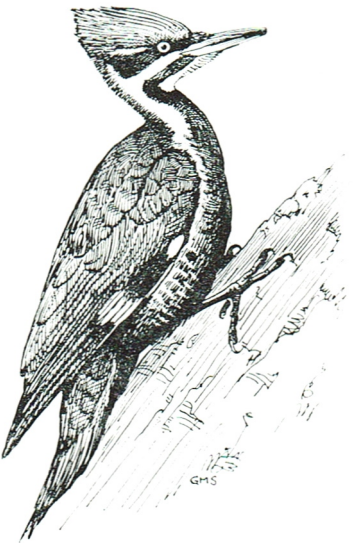
*DOWNY WOODPECKER, *Dendrocopos pubescens*.—Occurs not infrequently, and as usual is resident, having been observed along Sarver's Run west of Sarversville on December 24, 1892.

RED-HEADED WOODPECKER, *Melanerpes erythrocephalus*.—Common over the upland, frequenting the open woods, groves, and scattered trees in the fields,

and often coming into the orchards. As it is ordinarily a summer resident, I was somewhat surprised to find it in considerable numbers from January 13 to 17, 1897, in its usual summer haunts. Two individuals were noted at Buffalo Church, a mile east from Sarver; the others to the southeast of Leasuresville.

*YELLOW-SHAFTED FLICKER, *Colaptes auratus.*—Common and generally distributed, except in the deep forest. [Heard April 22, 1899; probably an arrival . . . WECT].

*[PILEATED WOODPECKER, *Dryocopus pileatus.*—At least one pair, perhaps more, resident and breeding at Todd Sanctuary, 1969 . . . JG].



7 Pileated Woodpecker

WHIP-POOR-WILL, *Caprimulgus vociferus.*—Throughout the whole of this region the Whip-poor-will is very common, though from its retiring habits it is oftener heard than seen, haunting as it does the densest forest and venturing forth only in the hours of darkness. A nest, or rather nesting-place, was found May 29, 1889, from which were secured a set of two eggs, in an advanced stage of incubation.

COMMON NIGHTHAWK, *Chordeiles minor.*—Not uncommon.

*CHIMNEY SWIFT, *Chaetura pelagica.*—Fairly numerous, and frequently observed entering chimneys, where it was no doubt nesting.

*RUBY-THROATED HUMMINGBIRD, *Archilochus colubris*.—Of frequent occurrence in both woodland and orchard.

*EASTERN KINGBIRD, *Tyrannus tyrannus*.—Common over the open upland country; found in the scattered trees along the roadsides, and at least one pair for every orchard. A nest was found May 30, 1889.

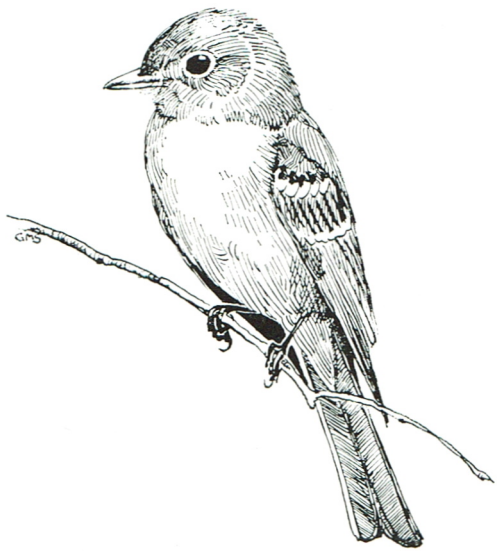
*GREAT CRESTED FLYCATCHER, *Myiarchus crinitus*.—One of the most characteristic birds of this region, being very common throughout the woodland.

*EASTERN PHOEBE, *Sayornis phoebe*.—Most numerous about the rocky bluffs that occur at intervals along Buffalo Creek, where it nests in the crevices of the rocks. A nest was found May 27, 1889, at the "High Rocks."

*EASTERN WOOD PEWEE, *Contopus virens*.—Quite common in the open deciduous woods, as well as in orchards.

*ACADIAN FLYCATCHER, *Empidonax virescens*.—Very common in the low, damp bottom-woods that cover the ravines of the small streams, haunting their deepest and most solitary recesses; and nesting in hemlocks in default of beeches.

*[TRAILL'S FLYCATCHER, *Empidonax traillii*.—Nesting near Todd Sanctuary, 1969 . . . JG].



8 Acadian Flycatcher

LEAST FLYCATCHER, *Empidonax minimus.*—Two pairs were observed June 10, 1889, both in upland orchards (near Leasuresville), where they were doubtless nesting at the time.

*HORNED LARK, *Eremophila alpestris.*—On June 10, 1889, while driving along the highway about a mile west of Leasuresville, I saw a pair of birds which I did not at once recognize running about in the dust some distance ahead. Hastily getting out, I approached them, and, after a little maneuvering, was agreeably surprised to find that they were Horned Larks. I wished very much to secure them, but had unfortunately left my shotgun behind. The pair undoubtedly had a nest in the immediate vicinity, but at any rate their presence at such a date would of itself be sufficient to prove that they were breeding. This instance, I believe, considerably extends the known breeding range of the species in Pennsylvania. [One on the road near the farmhouse, July 2, 1899 . . . WECT]. [Recorded in 1969 as breeding in numbers on the golf course and plowed fields near Todd Sanctuary . . . JG].

*BLUE JAY, *Cyanocitta cristata.*—Quite common, and a resident during some years at least, as it was noted in considerable numbers from January 13 to 17, 1897. A nest containing four eggs with large embryos was found May 23, 1889, in a hemlock sapling in the woods along Watson's Run. ["Surprisingly uncommon" in the summer of 1969 . . . JG].

*COMMON CROW, *Corvus brachyrhynchos.*—Here the Crow is common and a resident, its seasonal status thus contrasting sharply with that in Beaver County, where it is a perfectly migratory species. It was very numerous in December, 1890, and January, 1891. [For a discussion of this migratory puzzle, see Todd's *Birds of Western Pennsylvania* . . . Ed.]

†BOBOLINK, *Dolichonyx oryzivorus.*—Abundant over the upland meadows, where the males are very conspicuous in their bright dress and tinkling song.

*BROWN-HEADED COWBIRD, *Molothrus ater.*—Evidently this bird is less common than in Beaver County, as it was not detected except in June, 1894, though an egg was found in a Yellow Warbler's nest May 29, 1889. ["Found throughout the Sanctuary during the breeding season" 1969 . . . JG].

†RED-WINGED BLACKBIRD, *Agelaius phoeniceus.*—Every swampy meadow in the upland, and every marshy spot along Buffalo Creek, has its proportionate quota of these birds. They were noted also at Sarversville. A nest containing four eggs was found at my usual headquarters May 22, 1896.

†EASTERN MEADOWLARK, *Sturnella magna.*—Very common in summer in the upland fields and meadows, and here as elsewhere apparently wintering

occasionally, two individuals having been noted December 30, 1890. [Heard in upland field March 5, 1903 . . . WECT].

ORCHARD ORIOLE, *Icterus spurius*.—So far this species has been found only in the orchard trees about my usual headquarters, where on May 30, 1889, a nest with four eggs was secured. A male was noted in June of 1893 and 1894, probably the same one whose nest was rifled in 1889, while in May, 1896, two males were conspicuous.

†BALTIMORE ORIOLE, *Icterus galbula*.—This gaudy species is much more abundant and generally distributed than the last, though it is found mostly in orchards and about houses, less frequently in woodland. It has been repeatedly observed in the breeding season at a point west of Sarversville, along Sarver's Run. A nest with six eggs was taken May 25, 1889, and another with five on May 31.

†COMMON GRACKLE, *Quiscalus quiscula*.—Not nearly so common as at Beaver, but still numerous, nesting in orchards, and, together with the Red-winged Blackbird, doing considerable damage in the corn-fields in May.

†[PINE SISKIN, *Spinus pinus*.—Watson's Run, February 22, 1902. A flock of about fifteen were feeding in the upper branches of the hemlocks and other trees, constantly twittering as they were thus engaged. A winter visitant in this section . . . WECT]. [Breeding record in 1946 . . . per JG].

*AMERICAN GOLDFINCH, *Spinus tristis*.—Common as usual in summer, and noted also in January, 1897, being thus a resident species.

*VESPER SPARROW, *Pooecetes gramineus*.—Common in its accustomed resorts in the upland, and observed west of Sarversville.

†[BACHMAN'S SPARROW, *Aimophila aestivalis*.—per JG].

†[SAVANNAH SPARROW, *Passerculus sandwichensis*.—per JG].

*GRASSHOPPER SPARROW, *Ammodramus savannarum*.—The upland fields and meadows are the favorite resorts of this bird, which is rather common. I have heard it singing at night in such situations.

WHITE-CROWNED SPARROW, *Zonotrichia leucophrys*.—A transient individual was seen May 15, 1889, in some hazel brush by the roadside a mile northwest of Monroe station.

[WHITE-THROATED SPARROW, *Zonotrichia albicollis*.—One at the mouth of Watson's Run, April 24, 1899, was probably an arrival.—September 29, 1904, a few seen along Watson's Run. A spring and fall transient . . . WECT].

TREE SPARROW, *Spizella arborea*.—A number were seen along Sarver's Run on December 23 and 24, 1892.

*CHIPPING SPARROW, *Spizella passerina.*—Abundant as usual about houses and over cultivated country.

*FIELD SPARROW, *Spizella pusilla.*—Common in its accustomed haunts; a nest with eggs was found in June, 1893.

†SLATE-COLORED JUNCO, *Junco hyemalis.*—Found commonly during all of my winter visits, both at Leasuresville and Sarversville.

*SONG SPARROW, *Melospiza melodia.*—Of common occurrence throughout the region, and along Sarver's Run seen both in winter and in summer.

*RUFOUS-SIDED TOWHEE, *Pipilo erythrophthalmus.*—Numerous in its usual haunts of bush, brier, and thicket.

*CARDINAL, *Cardinalis cardinalis.*—A resident, but is not common. It has been seen in winter on one occasion (December 30, 1890)—a small party in the hemlocks along Buffalo Creek. [Now common in appropriate habitat . . . JG].

†ROSE-BREASTED GROSBEAK, *Pheucticus ludovicianus.*—Very common here, as much so as in Beaver County, but seems much more partial to the woodland in this wilder district, building its nest by preference in the deeper parts.

*INDIGO BUNTING, *Passerina cyanea.*—Common, frequenting hazel thickets, where I have found the nest.

*SCARLET TANAGER, *Piranga olivacea.*—Among the most abundant and characteristic species of this locality, the coniferous forest being its favorite resort.

CLIFF SWALLOW, *Petrochelidon pyrrhonota.*—Socially distributed, and by no means so numerous as the next species. A few birds and nests were observed in July, 1886, in Leasuresville and vicinity.

†BARN SWALLOW, *Hirundo rustica.*—An abundant species, nesting in almost every barn. Two sets of eggs were collected May 25, 1889.

†ROUGH-WINGED SWALLOW, *Stelgidopteryx ruficollis.*—Swallows seen along Buffalo Creek, from the mouth of Little Buffalo to above Boggsville, in June, 1892 and 1894, have proved to be of this species. They are fairly common, and doubtless breed in the rocky bluffs along the creek.

*CEDAR WAXWING, *Bombycilla cedrorum.*—Common. I have found it nesting in June some three miles southwest of Sarversville (near Ekastown) in an orchard.

†[STARLING, *Sturnus vulgaris.*—Modern breeding records . . . JG].

*[WHITE-EYED VIREO, *Vireo griseus.*—"A new species either just moving in or merely overlooked. They seem to prefer the alder thickets along the upper reaches of the streams flowing through open fields" . . . JG].

*[YELLOW-THROATED VIREO, *Vireo flavifrons*.—One pair bred at Todd Sanctuary, 1969 . . . JG].

*RED-EYED VIREO, *Vireo olivaceus*.—Abundant throughout the woodland, where I have found the nest on several occasions.

WARBLING VIREO, *Vireo gilvus*.—Unlike the last, the present species is partial to orchards and groups of trees in the open. A nest with four slightly incubated eggs was taken May 22, 1889, in the orchard at my stopping-place near Leasuresville, and another nest, probably the work of the same pair of birds, was found May 22, 1896.

*BLACK-AND-WHITE WARBLER, *Mniotilta varia*.—A common species in the woodland, where on May 27, 1889, I took a set of four slightly incubated eggs. The exact locality was a hillside woods near the mouth of Pine Run, the nest being placed on the ground underneath a fallen branch. ["Not common" at Todd Sanctuary, 1969 . . . JG].

†WORM-EATING WARBLER, *Helmitheros vermivorus*.—Tolerably common in the deep woods, in whose recesses I have observed it in June of several years, shooting a specimen at the mouth of Watson's Run June 23, 1893.

*GOLDEN-WINGED WARBLER, *Vermivora chrysoptera*.—A species partial to bushes, shrubbery, and thickets in swampy places, also to some extent about the margins of woods, along Buffalo Creek as well as over the upland. Though not common, it is by no means rare. I shot one at the mouth of Little Buffalo Creek June 23, 1893.

†[BLUE-WINGED WARBLER, *Vermivora pinus*.—per JG].

[NASHVILLE WARBLER, *Vermivora ruficapilla*.—One noted in some shrubbery along Sarver's Run, where the road crosses between Sarver Station and Ekastown, June 17, 1907. Although the season has been so very late, I am inclined to think that this bird was breeding here, and was not an exceptionally late migrant . . . WECT].

PARULA WARBLER, *Parula americana*.—In this locality the Parula Warbler is a common breeder. I did not actually find the nest, but on May 30, 1889, saw a female gathering nesting material. From its small size, and its habit of staying in the thick tops of the highest hemlocks, it is very difficult to see or secure, though its peculiar humming note, which may be likened to the sound made by the cicada, always betrays its presence. [Two noted in hemlocks along Buffalo Creek, April 24, 1899 . . . WECT].

*YELLOW WARBLER, *Dendroica petechia*.—Abundant; as usual found mostly in orchards and about houses, although I took a set of eggs (May 30, 1889) from a nest in a clump of elder bushes in a field.

†MAGNOLIA WARBLER, *Dendroica magnolia.*—During the season of 1889 I had the good fortune to find the Magnolia Warbler nesting. The discovery was made in the narrow bottom of Watson's Run, perhaps a quarter of a mile from its mouth. On May 30, while rummaging about in a bushy growth of young hemlock saplings, I found a nest placed about three feet from the ground in the midst of one of them. It was made of slender, blackish, dead twigs (mostly of the hemlock) with fine weed-stems and horsehair for lining. On June 1 the nest contained three eggs, and on June 3 I saw the female on the nest in which now a fourth egg had been laid. She left her place, and though I waited for her to return, so that I might complete the identification, she refused to do so, and in company with her mate hovered uneasily about until nightfall. On my return early the next morning the female left the nest at my approach, and a moment later lay dead at my feet, thus putting the identification beyond question. The ground-color of the eggs was white, with just the least possible suggestion of yellow, marked all over, but most thickly at and around the larger end, with more or less distinct spots and blotches of reddish-brown and the usual lilac shell-markings. Significant in its relation to the above instance was the taking of a magnificent male at this precise spot on June 21, 1892; the capture of a female June 23, 1893, at a point a few hundred feet farther down the stream, and the observation of a male at the old site the following day; and in 1895, on June 27, the securing of another fine male specimen not far above the same place; and finally, the noting of a male at the precise locality on June 28, 1897. These occurrences may not improbably be related to each other, but even if so they indicate that the species is a regular, if rare, breeder in this particular locality, and is to be looked for in other stream-bottoms where are found the hemlock growths it loves so well. It was found as a not uncommon migrant in 1889 up to May 23. [Seen at same spot (Watson's Run) July 2, 1898.—One in a dense growth of hemlocks above "Ewing's coal-bank," July 1, 1899.—July 3, 1899, a pair in the hemlocks up Pine Run. The developments of the last few days have proved that this species occurs in other suitable situations as well as along Watson's Run . . . WECT]. [Latest breeding record in 1946 . . . per JG].

[CAPE MAY WARBLER, *Dendroica tigrina.*—September 28, 1904, saw a number together on the single spruce tree by the "old house." Both sexes were represented. Doubtless they were attracted to this tree from its similarity to their favorite haunts in their northern breeding-grounds, as they always returned to it time after time after excursions to the surrounding fruit trees. A fall transient . . . WECT].

*CERULEAN WARBLER, *Dendroica cerulea*.—The only instance of this bird's occurrence in this locality that has come to my notice is of two immature specimens that I was so fortunate as to secure July 2, 1897, in some low bushes and shrubbery about three-quarters of a mile up Cornplanter Run. It ought to occur, however, in the high oak woods of the uplands.

CHESTNUT-SIDED WARBLER, *Dendroica pensylvanica*.—With this species the case is very different from what it is in Beaver County; here, every patch of hazel thicket has its pair of Chestnut-sided Warblers, or, if extensive, its several pairs, the gay and sprightly male ever prominent on its outskirts or on some shrub in its midst, constantly uttering his short but sweetly-modulated song. Notwithstanding this clue, the nest seems difficult to find; after many vain searches I at last (June 3, 1889) succeeded in finding one containing four highly incubated eggs. It was built in the crotch of a hazel stalk, four and one-half feet from the ground. The species is found both over the upland and along the streams, though disliking the deep woods.

BLACKPOLL WARBLER, *Dendroica striata*.—Apparently not an uncommon spring transient, and more numerous than at Beaver. It is a late migrant, individuals having been observed in 1889 from May 18 to 27, and along Sarver's Run west of Sarversville as late as May 25 in 1896. [September 29, 1904, a few seen . . . WECT].

*[PRAIRIE WARBLER, *Dendroica discolor*.—At least three pairs nested in or near Todd Sanctuary in 1969; one nest found . . . JG].

BLACKBURNIAN WARBLER, *Dendroica fusca*.—I saw a single male June 4, 1889, at the same place where the Magnolia Warbler's nest was found; this indicates that the species breeds. What may possibly have been transient individuals were noted on May 17, 23, and 27, 1889.

*BLACK-THROATED GREEN WARBLER, *Dendroica virens*.—One of the common and characteristic birds of this region, partial to thick coniferous woods, where its peculiar wheezy song is constantly to be heard from the tops of the pines and hemlocks.

*OVENBIRD, *Seiurus aurocapillus*.—Very abundant throughout the woodland, more so perhaps than I have elsewhere noted it. A nest with five fresh eggs was secured May 29, 1889, and later in the season another was found containing the same number. A third nest, containing young, was discovered near the mouth of Pine Run on June 29, 1897.

*LOUISIANA WATERTHRUSH, *Seiurus motacilla*.—This essentially southern species is found commonly along the courses of the smaller streams in the deep woods, from whose cool recesses its beautiful song rings out full and

9 The present hardwood forest, Hooded Warbler habitat, at Todd Sanctuary.

10 Hooded Warbler at its nest in Todd Sanctuary, 1969. This is now the most abundant warbler at the Sanctuary, yet it was not recorded by Todd in the 1880's and 1890's.

clear. It has also been repeatedly noted about pools of water in the woods near the mouth of Little Buffalo Creek, where, on June 23, 1893, I took an immature bird. Another specimen was secured about a mile north of Boggsville June 11, 1894. Specimens have been taken along Watson's Run also (July 1, 1897).

*[KENTUCKY WARBLER, *Oporornis formosus.*—"A fairly common summer resident in the lush fern-covered areas so prevalent in a great portion of the Sanctuary. Although no nest of the five pairs listed was found, nests of this warbler have been located (Sylvia Reebel) in recent years" . . . JG].

*YELLOWTHROAT, *Geothlypis trichas.*—Apparently confined to the weedy tracts which occur at intervals along Buffalo Creek, where it is not uncommon. [Not a common bird at Todd Sanctuary, only one pair recorded in 1969 . . . JG].

*YELLOW-BREASTED CHAT, *Icteria virens.*—I did not meet with this species in 1889, though careful search was made for it, so that I was somewhat surprised to find two individuals in 1892, one on June 20, in a thicket along Buffalo Creek about halfway between Watson's Run and Little Buffalo Creek; the other on June 22 in a similar situation in the upland country above. Again in 1894, on June 11, I secured a specimen half a mile north of Boggsville. A pair were found in a thicket on the upland to the east of the gorge of Watson's Run on June 28, 1897, and the female secured. ["Common to abundant in the brushy abandoned farmlands surrounding the Sanctuary" in 1969 . . . JG].

*[HOODED WARBLER, *Wilsonia citrina.*—"Todd Sanctuary's most abundant warbler . . . eleven singing males were . . . carefully counted. Three nests were found in June and July" 1969 . . . JG].

CANADA WARBLER, *Wilsonia canadensis.*—Common in woodland thickets, where the sprightly song of the male is one of the characteristic sounds. It is particularly numerous along Buffalo Creek where the forest reaches the water's edge as well as in the wooded bottoms of the smaller streams.

*[AMERICAN REDSTART, *Setophaga ruticilla.*—"Very uncommon" breeder at Todd Sanctuary in 1969 . . . JG].

†[HOUSE SPARROW, *Passer domesticus.*—Undoubtedly present on Hazelwood Farm, but ignored by Todd . . . Ed.] [Recorded near Todd Sanctuary . . . per JG].

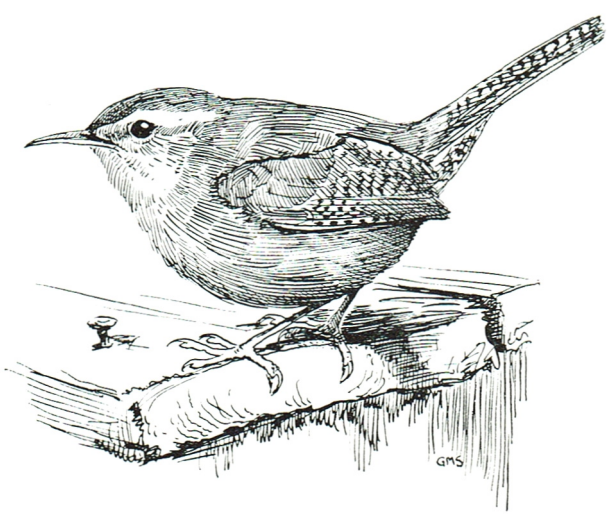
*CATBIRD, *Dumetella carolinensis.*—Abundant in its usual haunts of briery thickets, bushy second-growth, and about orchards and gardens.

*BROWN THRASHER, *Toxostoma rufum.*—Not so common as the last species, but still numerous, and found in much the same situations. A nest with young was discovered May 20, 1896, built on the ground in the midst of a clump of hazel sprouts.

[WINTER WREN, *Troglodytes troglodytes.*—One noted along Watson's Run, February 22, 1902. Doubtless a winter resident here, as in Beaver County . . . WECT].

*[HOUSE WREN, *Troglodytes aedon.*—A single pair bred near Todd Sanctuary in 1969 . . . JG].

*CAROLINA WREN, *Thryothorus ludovicianus.*—This species is probably a resident, though there is no positive evidence that it occurs in the breeding season. Its claim to a place on this list is based on a single individual observed along Sarver's Run west of Sarversville, December 23, 1892. [Common breeding species at Todd Sanctuary, 1969 . . . JG].



11 Carolina Wren

*WHITE-BREASTED NUTHATCH, *Sitta carolinensis.*—A species of the woodland, where it is commonly and regularly dispersed.

*TUFTED TITMOUSE, *Parus bicolor.*—Another forest-loving bird, not noted in winter, and but fairly numerous in summer.

*BLACK-CAPPED CHICKADEE, *Parus atricapillus.*—Rather common in the woodland, where two nests containing young were found early in June,

1889. It has been observed in midwinter along Buffalo Creek and along Sarver's Run west of Sarversville, and is therefore a permanent resident.

GOLDEN-CROWNED KINGLET, *Regulus satrapa.*—Evidently a winter resident, a few having been noted along Sarver's Run west of Sarversville December 24, 1892.

[RUBY-CROWNED KINGLET, *Regulus calendula.*—Noted April 23, 1899, on migration; also April 24 . . . WECT].

*BLUE-GRAY GNATCATCHER, *Polioptila caerulea.*—I was very much surprised to meet with an individual of this Carolinian species on May 22, 1896, in some trees at the head of a little stream that pitches down into Buffalo Creek at a point near my usual stopping-place. While there is every probability that the bird was breeding at the time, such probability would have been increased had the date been in June. [Apparently when this was written, WECT did not realize that this species is an early nester; the May date is well into its breeding season . . . Ed.]

*WOOD THRUSH, *Hylocichla mustelina.*—An abundant species throughout the woodland, where a nest with four eggs was found May 30, 1889.

*VEERY, *Catharus fuscescens.*—In this region the Veery is a very common and characteristic bird, its favorite haunts being the evergreen woods and swampy thickets, from whose deep recesses its wild, weird song falls upon the ear with striking effect. I have noted it along Little Buffalo Creek at Sarversville, along Sarver's Run a mile to the westward, and at a point a mile north of Boggsville, and it seems particularly common and obstreperous at Monroe Station. A nest found May 27, 1889, contained three eggs, slightly incubated. ["Unaccountably scarce" in Todd Sanctuary area, 1969 . . . JG].

*ROBIN, *Turdus migratorius.*—Abundant as usual.

*EASTERN BLUEBIRD, *Sialia sialis.*—Fairly numerous, and has been found west of Sarversville.

ISSUED APRIL 24, 1972

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